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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,087	08/26/2003	Ramanan V. Chebiam	42P13235D2	4929

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EXAMINER	
LAVILLA, MICHAEL E	

ART UNIT	PAPER NUMBER
1775	

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/649,087	CHEBIAM ET AL.	
	Examiner	Art Unit	
	Michael La Villa	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *20030826, 20040608*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant is reminded of the proper content of an abstract of the disclosure.

2. A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

3. The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

4. Where applicable, the abstract should include the following:
   (1) if a machine or apparatus, its organization and operation;
   (2) if an article, its method of making;
   (3) if a chemical compound, its identity and use;
   (4) if a mixture, its ingredients;
   (5) if a process, the steps.

5. Extensive mechanical and design details of apparatus should not be given.

6. The abstract of the disclosure is objected to because the Abstract does not describe the invention as now claimed. Correction is required. See MPEP § 608.01(b).

7. The disclosure is objected to because of the following informalities: (1) The status of the parent application should be updated by amendment at the first line of the Specification. (2) The claim status of canceled claims

should be reflected in the claim listing. Were applicant to file additional claim amendments, the claim status of canceled Claims 1-12 and 22-30 should be provided for. Were applicant not to present claim amendments in response to this Office Action, a new listing of claims should be submitted nevertheless with the claim status of canceled Claims 1-12 and 22-30 provided for.

8. Appropriate correction is required.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

10. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 13-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

I. Regarding Claim 13, it is unclear whether the amount of P is permissibly zero or whether there must be a finite amount, but possibly close to zero. It is unclear whether the amount of B must be necessarily finite, i.e., whether y must be greater than zero.

II. Regarding Claim 14, it is unclear whether the claim demands that the composition of Claim 13 is to further comprise a metal compound listed in Claim 14, whether the claim demands that the structure itself further comprises a compound of Claim 14 separate from the

composition of Claim 13, or whether both situations are covered. Analogous rejections apply to Claims 16 and 18.

III. Regarding Claim 15, it is unclear what is meant by the phrase "is substituted or accompanied by". What does it mean to say that there is substitution? What relevance does Cu have in that situation in terms of claimed structure or composition? Analogous rejections apply to Claims 17 and 19.

IV. Regarding Claim 20, it is unclear whether the antecedent basis of the phrase "the metal is a metal combination" refers to the "primary metal".

V. Regarding Claim 21, it is unclear what is the antecedent basis of the phrase "the metal". Is this "pM"? Is this a reference to the overall formula for the composition of Claim 13? Do the conditions on w, x, y, and z of Claim 13 apply? How can B be absent when y is necessarily finite?

VI. Regarding Claims 20 and 21, where a metal combination is specified, it is unclear whether each such metal of the metal combination must be present in finite amounts. Must they be present in equal atomic amounts?

Claim Objections

12. Claims 15, 17, and 19 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. To the extent that Claims 15, 17, and 19 permit complete substitution of Cu, Ni, and Co, respectively, in the corresponding claim from which these claims depend, these claims are not further limiting. They specify subject matter not encompassed by the claims from which they depend.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. Claims 13, 18, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. USP 6,717,189 in view of Applicant's Admissions. Inoue teaches applying protective electroless layers of the claimed composition over semiconductor devices with embedded interconnect structures. See Inoue (Abstract; col. 3, lines 38-56; col. 14, line 16 through col. 15, line 33). Inoue may not teach applying these layers to a M6 pad. Applicant's Admissions teach that a M6 pad may be the outer part of a semiconductor device with embedded interconnect structure. See Applicant's Specification (pages 1, line 10 through page 3, line 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the layer of Inoue to a M6 pad as such a pad may be an outer part of a semiconductor device having embedded interconnect structures, which Inoue teaches may be suitably protected by the layer of Inoue.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael La Villa whose telephone number is (571) 272-1539. The examiner can normally be reached on Tuesday, Thursday, and alternating Fridays.

17. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-

1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

18. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael La Villa
2 April 2005